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## Abstract

Bean anthracnose results in significant yield losses, and the present primary management strategy of using synthetic fungicides is hampered by a number of factors. This study assessed the antifungal effects of aqueous, methanolic, and ethyl acetate extracts of *Leonotis nepetifolia* (*Lamiaceae*) against *Colletotrichum* species that cause bean anthracnose. The poisoned food technique was used to evaluate extracts in-vitro, and trials were carried out on farmer's plots. On the other hand, phytochemical analysis was done using LC-MS. Results obtained in-vitro show that the ethyl acetate extract was the most effective since it completely inhibited mycelial development at concentrations of 5mg/mL and 2.5mg/mL. On the other hand, the aqueous and methanolic extracts exhibited a comparable inhibitory effect, and at the higher concentration (5.0mg/mL), a remarkable percentage of inhibition of 73.3% and 83.1% was recorded. According to field trials, bean anthracnose incidence was low and there were fewer infected pods per plant in plots treated with *L. nepetifolia* extracts than in the negative control. In comparison to the negative control plots, extracts-treated plots had larger weights of 100 seeds but no discernible negative effect in seed germination. LC-MS analysis indicated the presence of Linoleoyl ethanolamide, Curcumol, Deguelin, 9,10-dihydroxy-12Z-octadecenoic acid, Naringenin-7-O-glucoside, and 9S-hydroxy-10e 12z 15z-octadecatrienoic acid in the ethyl acetate extract whereas 6-Methoxyluteolin, Genistein, 5,7,3,4-tetramethoxyisoflavone, and 3,4-Dihydroxymandelic acid were identified in the aqueous extract. Antifungal activity and the presence of bioactive components revealed by extracts in this study demonstrate the potential of *L. nepetifolia* as a source of botanical fungicide for the management of bean anthracnose.

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